DEVELOPMENT OF ENERGY CENTRE COOLING PLANT

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Abstract

This work study reviews the conceptual development of optimization strategies of an Energy Centre based on operational task of daily thermal load contours and interaction of weather profiles of the environment in the selected area of the project. The weather profile analysis was primarily done by the interactive plotting of temperature/humidity sensor data against historical data. Gray Model was also employed in order to predict much accurate data patterns in the fuzzy areas of weather prediction process. However, by introduction of genetic algorithm on the historical samples would able to predict the anticipated weather profile more accurately and thereby the thermal load required for the future trend on the following day. The current thermal energy storage (TES) technologies and their applications using the traditionally available methods are the common practice of any ice storage design in the industry; however in this analysis dedicated low freezing media (Glycol) is used to chill the common chilled media (water) and also the chilled media is used as storage medium with phase change. Latent heat storage on the other hand, is a young and developing technology which has found considerable interest in recent times due to its operational advantages of smaller temperature swing, smaller size and lower weight per unit of storage capacity. Design methodology and its prime results of simulation show the effectiveness of the proposed solution for an Energy Centre for efficient operation.